Physics 137b: Quantum Mechanics

Instructor: Prof. Marjorie Shapiro

Class Hours: Mon, Wed and Fri 9-10AM in 579 Evans

Office Hours: Wed 10-11AM and Fri 2:00-4:00PM in

Email: mdshapiro@lbl.gov

Phone: 486-4683 (at LBL)

Web Page: http://www-cdf.lbl.gov/~shapiro/p137b.html

Prerequisites: Physics 137a and Math 50AB or equivalent

Course Description:

This class continues the study of quantum mechanics from where Physics 137a ended. Among the topics covered are: continued discussion of three dimensional quantum mechanics, including angular momentum and spin, approximation techniques, many particle systems, interaction of quantum systems with electromagnetic radiation and collision theory. A brief introduction to scattering and the relativistic quantum mechanics will also be included.

Problem Sets:

Homework is due Friday at 5PM beginning Jan 31. Problem sets will be available from the class web site a week in advance. Homework should be deposited in the appropriate box in the second floor cross-over between LeConte and Birge Halls. Late homework will NOT be accepted without explicit permission of the instructor.

Grading:

The class is graded out of a total of 500 points. Points are assigned as follows:

Homework:	140 points
Midterm # 1:	90 points
Midterm # 2:	90 points
Final:	180 points
Total:	500 points

Midterms will be given in class and are tentatively scheduled for Friday Feb 27 and Friday April 9. No homework will be due the week of the midterm exams.

References:

The required text for the class is Bransden & Joachain *Quantum Mechanics*, 2nd edition, Prentice Hall. There are many other useful Quantum Mechanics reference texts. Some are:

- Richard Feynman, *The Feynman Lectures of Physics, Volume 3*, Addison-Wesley.
- Richard L Liboff, *Introduction to Quantum Mechanics*, Holden-Day, Inc.
- Hans C. Ohanian, *Principles of Quantum Mechanics*, Prentice Hall.
- Merzbacher *Quantum Mechanics* (this book is more advanced)